Paper No. 16

THE PHYSICAL STRUCTURE OF RECONSTITUTED TOBACCO SHEET. Raymond J. Moshy and Robert E. Lang, American Machine & Foundry Company, Springdale, Connecticut.

## ABSTRACT

The development, utilization and general acceptance of reconstituted tobacco sheet in cigarette manufacture in the United States is a major technological feat, which has been accomplished within the past ten years. The impetus behind this unusually fast development, and the commercial application of reconstituted tobacco sheets, has been the savings derived from the more complete use of tobacco in cigarette manufacturing operations, in which sheet tobacco is incorporated, Details of economics, processing and use in American cigarettes are given in the paper. The virtually untouched area of the physical structure of reconstituted cigarette tobacco sheets will be discussed in the context of structure and process type; and, also in the context of structure and smoke. The physical structures of commercial reconstituted cigarette tobacco sheets will be compared and the major differences demonstrated photomicrographically. The need for including reconstituted tobacco sheet as a component of the American cigarette blend in work on cigarette smoke; and the importance of reconstituted sheet technology as a new tool of tobacco science, which can effect structural variations in tobacco sheet, unattainable with natural tobacco, are discussed in this paper.

## REVIEW BY A. B. CLARKE

This paper covered the use of reconstituted tobacco in cigarette manufacture. It was reported that 63% of the purchased leaf is directly usable as cigarette filler. Figure 1 illustrates this, which is based on tobacco auction weight utilization. During 1964 cigarettes manufactured in the U.S. contained an average of 15% reconstituted tobacco. Based on this percentage, savings amounted to about 27cents/1000 cigarettes. This saving is illustrated in Figure 2.

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FIGURE 1

CIGARETTE TOBACCO
AUCTION WEIGHT UTILIZATION

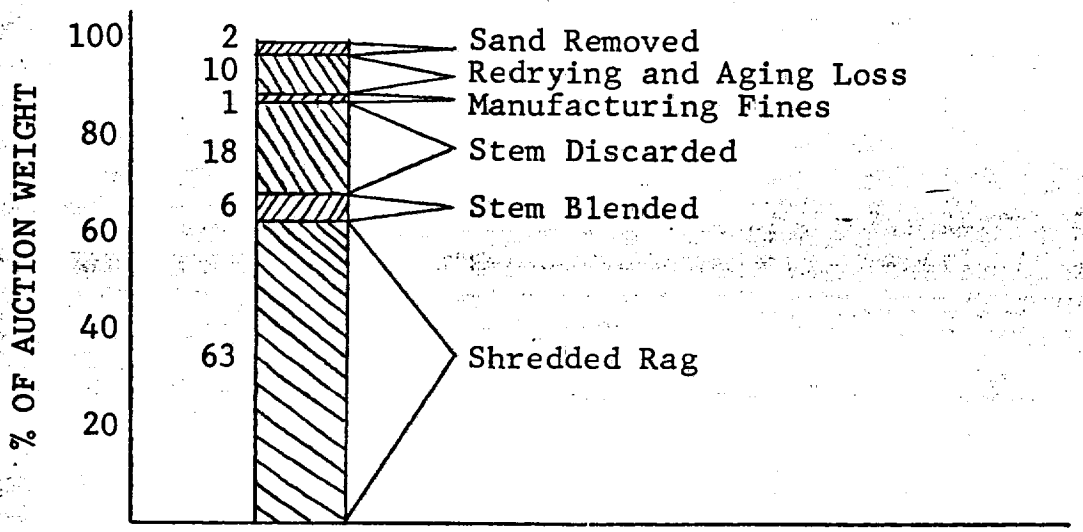


FIGURE 2

TYPICAL SAVINGS USING MANUFACTURED
CIGARETTE SHEET IN CIGARETTES

| | |
|---|---|
| Cost of natural cigarette tobacco at the maker | $1.00/lb.<br>2.20/1000 |
| Cost to convert scrap (no value) tobacco to cigarette sheet | .15 - .20/lb. |
| Savings per pound of manufactured cigarette sheet used | .80 - .85/lb. |
| Savings per 1000 cigarettes using 15% manufactured cigarette sheet in cigarettes | .264 - .281/1000 |
| Cost of 20 million pound per year capacity plant | $6 - 8 Million |
| ANNUAL SAVINGS | $16 - 17 Million |



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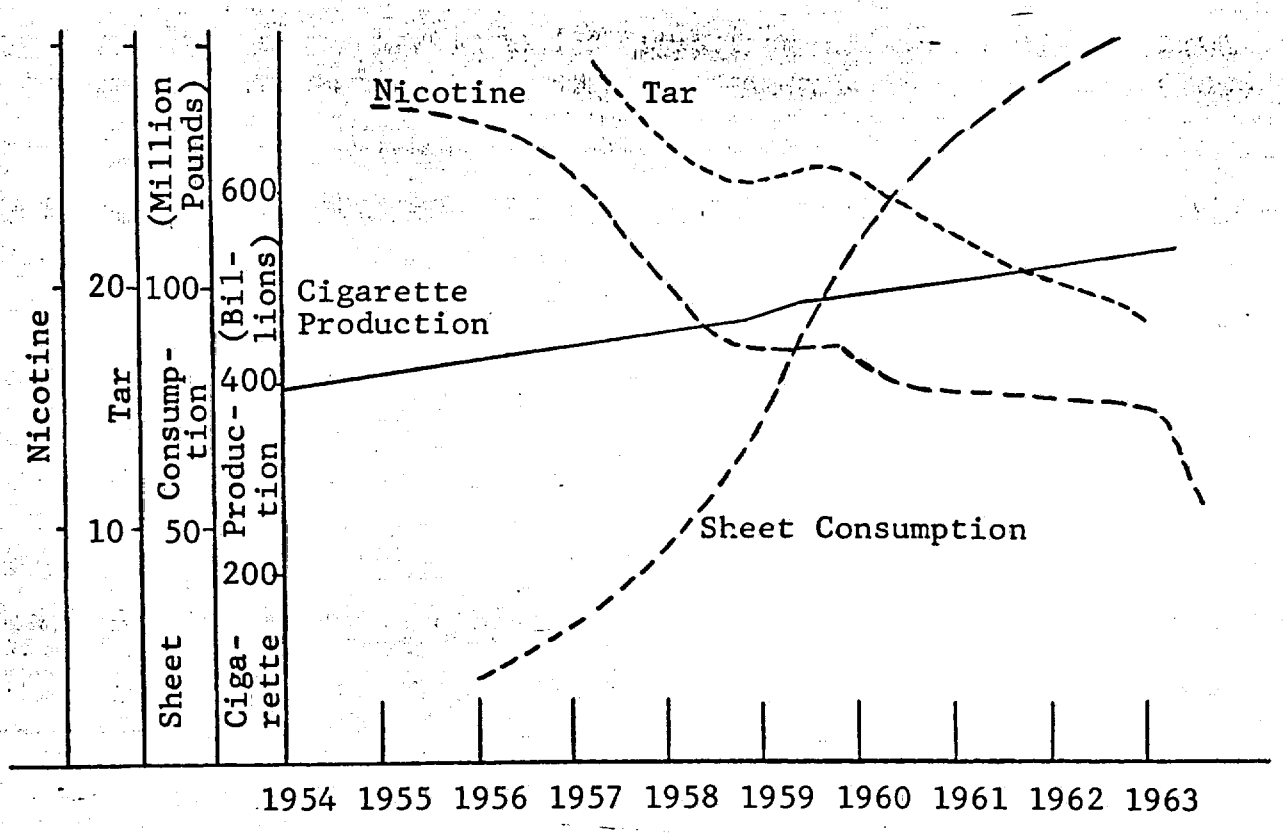
There are presently five processes for preparing sheet tobacco. They are: dust-binder-dust, slurry, paper, impregnated, and extrusion. Reconstituted tobacco varies considerably in physical and chemical properties because of process differences. From a health standpoint, reconstituted tobacco has not generally been included in studies to date.

Since 1956 the use of sheet tobacco in cigarettes has increased rapidly. TPM and nicotine have been steadily decreasing. Dr. Moshy stated that this general reduction has been largely due to the addition of reconstituted tobacco. This information is illustrated in Figure 3.




See Tobacco, 162 (1), 22-38 (1966).



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